SPECIFICATION

Please amend paragraphs [0006], [0010], [0018], [0026], [0028], [0029], [0032], [0036], [0068], [0085], and [0087] as follows:

[0006] Conventional power amplifiers rectify an AC ~~signal~~ power source to a regulated DC power source with transformers and other active inductive and capacitive circuits, which account for the majority of the weight, waste heat output, and cost of production associated with these prior-art amplifiers. As such, there is also a need for audio amplifiers that weigh less, produce less heat, and cost less.

[0010] An internal comparator accepts an input audio or other signal as well as the output signal from the second multiplier. This internal comparator monitors and processes the input audio signal with the modulated triangular wave signal to generate a Pulse Width Modulation (PWM) output signal. From the internal comparator, the PWM output signal is amplified by a power ~~device~~ transistor[[s]] device, and the amplified PWM signal passes through filters to remove a high-frequency carrier component. The signal output from the filters is an amplified ~~PWM power~~ audio signal, which is then used to drive a load device.

[0018] Fig. 6 is the circuit schematic of a preferred embodiment of the power ~~device~~ transistor device and filter.

[0026] FIG. 1 illustrates a preferred embodiment of the basic electrical components of the amplifier of the present invention. As seen in FIG. 1, an AC power supply 5 is coupled to an optional AC power circuit (transformer) 7 by an electrical connection 50. Optional AC power circuit 7 is coupled to a bridge rectifier 10 by an electrical connection 51. Bridge rectifier 10 is coupled to a voltage divider 15 by an electrical connection 55. Bridge rectifier 10 is also coupled to a power ~~device~~ transistor device 30 by an electrical connection 60.

[0028] The output of second voltage multiplier 23 is coupled to a first input 28 of an internal comparator 25 by an electrical connection 70. In a preferred embodiment, an audio signal source 35 is coupled to a second input 29 of an internal comparator 25 by an electrical connection 80. The output of internal comparator 25 is coupled to a power ~~device~~ transistor device 30 by an electrical connection 75. In the preferred embodiment, internal comparator 25 is internal of a pulse width modulation controller integrated circuit (PWM controller 93) that includes triangular wave generator 27, as described in detail below. Power ~~device~~ transistor device 30 is coupled to a filter 40 by an electrical connection 85. Filter 40 is coupled to a load device 45 by an electrical connection 90.

[0029] In operation, unregulated AC power supply 5 supplies an unregulated, AC power signal to the amplifier. The unregulated AC power signal passes through bridge rectifier 10, which rectifies, or converts, the unregulated AC power signal into an unregulated DC power signal. This unregulated DC power signal is used to provide a reference voltage to triangle wave modulator 91 as well as being used by power ~~device~~ transistor[[s]] device 30 to power load device 45.

[0032] The modulated triangular wave signal, output from triangular wave modulator 91, is the first input to ~~PWM Amp~~ comparator 25. The second input to ~~PWM Amp~~ comparator 25 is the audio signal being amplified, from audio source 35. ~~PWM Amp~~ Comparator 25 compares the modulated triangular wave signal and the audio signal to generate a pulse width modulation (PWM) power signal carrying the audio component. The PWM power signal then passes to power ~~device~~ transistor[[s]] device 30, which amplify the PWM power signal. This amplified PWM power signal then passes through filter 40 (e.g., an inductance capacitor filter) which filters out the high-frequency carrier component of the PWM power signal. This filtered PWM power signal provides a clean, undistorted audio signal free of noise to load device 45 because the modulated triangle wave signal compensates for variances in AC power supply 5, powering the load device 45 for the relevant application.

[0036] An electrical connection 121 couples a power supply regulator 120 to electrical connection 116. In a specific preferred embodiment, power supply regulator 120 is of the type comparable to a Motorola 78L12. Power supply regulator 120 is coupled to an electrical ground 108 by an electrical connection 123. A capacitor 124 and a capacitor 126 are coupled to power supply regulator 120 by an electrical connection 122. The two capacitors 124 and 126 are also coupled together and to ground by electrical connection 114.

[0068] FIG. 6 illustrates a preferred embodiment for the power ~~device~~ transistor device and filter (30 and 40 in FIG. 1) of the present invention. A terminal T_6 498 is coupled by an electrical connection 501 to an electrical connection 503. Electrical connection 503 couples a capacitor 521 to a capacitor 505 in series. An electrical connection 527 couples capacitor 521 to the anode of diode 530. An electrical connection 529 couples the cathode of diode 530 to a terminal V_H 213. An electrical connection 533 couples a resistor 534 to electrical connection 529 and to the cathode of diode 530 in a parallel circuit. An electrical connection 531 couples electrical connection 527 and an electrical connection 532 to resistor 536. An electrical connection 535 couples electrical connection 531 to the anode of a diode 537 in a parallel circuit to a resistor 536. Cathode of diode 537 is coupled to electrical connection 539 by an electrical connection 538.

[0085] A triangle (Δ) wave generated by triangle wave generator 91 (27 in FIG. 1, and described in detail in connection with FIG. 4) is coupled from PWM controller 93 and is modulated by TWM 91 and returned to PWM controller 93. The output of PWM controller 93 is input to power transistor device 30, which also receives rectified power from rectifier 10. Thus, the output of PWM controller 93 is employed to cancel noise present in the rectified power signal. The output of power transistor device 30 is typically applied to a filter 40 and then to a load 45, such as an audio speaker.

[0087] The choice of signal processor 1013 "type" corresponds with the desired modification to the signal. Thus, the output of PWM controller 93, with the addition of signal processing through TWM 91, is used in power transistor device 30 to accomplish the desired

modification to the input signal, while power-supply noise-cancellation is also achieved. This configuration is most ~~effectively~~ effectively adapted for audio input signals with an audio speaker load 45.

Below is a clean version of the above marked up paragraphs [0006], [0010], [0018], [0026], [0028], [0029], [0032], [0036], [0068], [0085], and [0087]:

[0006] Conventional power amplifiers rectify an AC power source to a regulated DC power source with transformers and other active inductive and capacitive circuits, which account for the majority of the weight, waste heat output, and cost of production associated with these prior-art amplifiers. As such, there is also a need for audio amplifiers that weigh less, produce less heat, and cost less.

[0010] An internal comparator accepts an input audio or other signal as well as the output signal from the second multiplier. This internal comparator monitors and processes the input audio signal with the modulated triangular wave signal to generate a Pulse Width Modulation (PWM) output signal. From the internal comparator, the PWM output signal is amplified by a power transistor device, and the amplified PWM signal passes through filters to remove a high-frequency carrier component. The signal output from the filters is an amplified audio signal, which is then used to drive a load device.

[0018] Fig. 6 is the circuit schematic of a preferred embodiment of the power transistor device and filter.

[0026] FIG. 1 illustrates a preferred embodiment of the basic electrical components of the amplifier of the present invention. As seen in FIG. 1, an AC power supply 5 is coupled to an optional AC power circuit (transformer) 7 by an electrical connection 50. Optional AC power circuit 7 is coupled to a bridge rectifier 10 by an electrical connection 51. Bridge rectifier 10 is coupled to a voltage divider 15 by an electrical connection 55. Bridge rectifier 10 is also coupled to a power transistor device 30 by an electrical connection 60.

[0028] The output of second voltage multiplier 23 is coupled to a first input 28 of an internal comparator 25 by an electrical connection 70. In a preferred embodiment, an audio signal source 35 is coupled to a second input 29 of an internal comparator 25 by an

electrical connection 80. The output of internal comparator 25 is coupled to a power transistor device 30 by an electrical connection 75. In the preferred embodiment, internal comparator 25 is internal of a pulse width modulation controller integrated circuit (PWM controller 93) that includes triangular wave generator 27, as described in detail below. Power transistor device 30 is coupled to a filter 40 by an electrical connection 85. Filter 40 is coupled to a load device 45 by an electrical connection 90.

[0029] In operation, unregulated AC power supply 5 supplies an unregulated, AC power signal to the amplifier. The unregulated AC power signal passes through bridge rectifier 10, which rectifies, or converts, the unregulated AC power signal into an unregulated DC power signal. This unregulated DC power signal is used to provide a reference voltage to triangle wave modulator 91 as well as being used by power transistor device 30 to power load device 45.

[0032] The modulated triangular wave signal, output from triangular wave modulator 91, is the first input to comparator 25. The second input to comparator 25 is the audio signal being amplified, from audio source 35. Comparator 25 compares the modulated triangular wave signal and the audio signal to generate a pulse width modulation (PWM) power signal carrying the audio component. The PWM power signal then passes to power transistor device 30, which amplify the PWM power signal. This amplified PWM power signal then passes through filter 40 (e.g., an inductance capacitor filter) which filters out the high-frequency carrier component of the PWM power signal. This filtered PWM power signal provides a clean, undistorted audio signal free of noise to load device 45 because the modulated triangle wave signal compensates for variances in AC power supply 5, powering the load device 45 for the relevant application.

[0036] An electrical connection 121 couples a power supply regulator 120 to electrical connection 116. In a specific preferred embodiment, power supply regulator 120 is of the type comparable to a Motorola 78L12. Power supply regulator 120 is coupled to an electrical ground 108 by an electrical connection 123. A capacitor 124 and a capacitor 126 are coupled to power supply regulator 120 by an electrical connection 122. The two

capacitors 124 and 126 are also coupled together and to ground by electrical connection 114.

[0068] FIG. 6 illustrates a preferred embodiment for the power transistor device and filter (30 and 40 in FIG. 1) of the present invention. A terminal T_6 498 is coupled by an electrical connection 501 to an electrical connection 503. Electrical connection 503 couples a capacitor 521 to a capacitor 505 in series. An electrical connection 527 couples capacitor 521 to the anode of diode 530. An electrical connection 529 couples the cathode of diode 530 to a terminal V_H 213. An electrical connection 533 couples a resistor 534 to electrical connection 529 and to the cathode of diode 530 in a parallel circuit. An electrical connection 531 couples electrical connection 527 and an electrical connection 532 to resistor 536. An electrical connection 535 couples electrical connection 531 to the anode of a diode 537 in a parallel circuit to a resistor 536. Cathode of diode 537 is coupled to electrical connection 539 by an electrical connection 538.

[0085] A triangle (Δ) wave generated by triangle wave generator 91 (27 in FIG. 1, and described in detail in connection with FIG. 4) is coupled from PWM controller 93 and is modulated by TWM 91 and returned to PWM controller 93. The output of PWM controller 93 is input to power transistor device 30, which also receives rectified power from rectifier 10. Thus, the output of PWM controller 93 is employed to cancel noise present in the rectified power signal. The output of power transistor device 30 is typically applied to a filter 40 and then to a load 45, such as an audio speaker.

[0087] The choice of signal processor 1013 "type" corresponds with the desired modification to the signal. Thus, the output of PWM controller 93, with the addition of signal processing through TWM 91, is used in power transistor device 30 to accomplish the desired modification to the input signal, while power-supply noise-cancellation is also achieved. This configuration is most effectively adapted for audio input signals with an audio speaker load 45.